Jas. R. Mellichamp

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THE SOUTHERN AGRICULTURIST.

(NEW SERIES.)

Vol. III. FOR AUGUST, 1843. No. 8.

From the Planter, by request.

ON THE PREPARATION OF SEA-ISLAND COTTON FOR MARKET.

Presented to the State Agricultural Society of South-Carolina, at its Meeting in November, 1842. By W. B. Seabrook, President.

1. On the preparation of Sea-Island cotton for market.

This subject is one of deep interest to the planter; especially so now, when it is believed that a diminished consumption, not the consequence of over-production,* is the prominent cause of the decline in the value of his crop. Good preparation insures, comparatively, a high price, whilst ignorance or carelessness on this head is inevitably followed by an opposite result. The difference in the value of cottons, arising solely from the manner of putting them up, varies from 5 to 50 per cent. with regard to the finer descriptions, and from 2 to 20 per cent. in relation to the inferior qualities. Estimating the annual crop in South-Carolina at 13,500 bags, or 4,455,000 lbs., and that a better mode of handling would enhance its worth 5 cents per lb., the difference in favor of the growers, small in number, and cultivating an inconsiderable section of the State, would be $222,750. At this period of pecuniary difficulty and individual embarrassments, it becomes alike the duty and interest of the planter to arouse from his dreamy speculations concerning the profits of production merely, and to learn the important truth, that when harvest season arrives, it is then competent

* In 1805, the quantity exported was 8,787,659 pounds. From 1821 to 1830, both inclusive, the aggregate crop was 107,294,930 pounds. In the ten succeeding years, it was only 79,041,596 pounds. In 1841, it amounted to 13,316 bags from South Carolina, and 6,449 from Georgia; total, 20,265 bags, or, 330 pounds per bag, to 6,687,450. 1842—13,247 bags from South-Carolina, and 7,214 from Georgia; total, 20,461 bags, or, 330 pounds per bag, to 6,752,130. The cotton year terminates on the 31st of August.

Mr. Houldsworth affirms that "long cotton is never mixed with uplands." On the contrary, Baines, in his history of the cotton manufacture of Great Britain, asserts that, "except the better qualities of Sea-Islands, there is no sort of cotton which is now confined in its use to any peculiar or exclusive purpose." "The long-stapled cottons are generally used for the twist or warp, and the short-stapled for the weft." The historian was either misinformed, or Mr H., as a spinner, had reference solely to his own establishment.

for him largely to increase the value of his crop, by care in a series of manipulations, tedious, it is true, in performance, but easily understood by the operator.

Effectually, however, to attain the end in contemplation, the planter's notice must have been previously engaged on other objects, requiring, if not as much circumspection, certainly greater skill and more extended information.

The distinguishing qualities of cotton-wool, in their relative order, are strength, fineness, length, and uniformity. For these, the Sea-Islands, as a class, stand pre-eminent, the Demararas next, and thirdly, the Egyptians. The first essential attribute of staple is strength. This, primarily, is the result of seed, and is subsequently maintained and improved by fertility of soil, natural or artificial, by healthy plants, and occasional changes of seed.—Although, from his imperfect conceptions of the operations of manures, the fibre produced by artificial stimulants is far more frangible than that which a naturally rich soil exhibits, nevertheless the grower has done much in this way to stimulate him to renewed activity. He is now also fully aware, that strength of staple is impaired, and frequently destroyed, in a variety of ways, but especially by throwing together his daily gatherings in too moist a condition. The opinion that solar power, by withdrawing the oil from the seed, and diffusing it into the lint, thereby imparts to it a richer color and more substantial texture, is at variance with the experience of our most observant cultivators. The sun in time extracts from cotton the oil of its filaments, as well as the seed, thus rendering the former brittle and colorless. The heat that arises from damp cotton,* if put away in a firm and compact bulk, produces one of the same effects. The oleaginous matter, however, in neither instance penetrates the fibre, the tubes of which are already full, and from collapsing in the middle, are actually incapable of containing as much fluid as before the capsule had burst. The consequence of an unctious external coat, while it *gives to the cotton a peculiar liability to become mouldy and to collect dirt*, and by these means causing it to assume a dingy, dull hue, is, necessarily, largely to increase the labor of handling, unaccompanied by any benefit whatever.

Imperfect pods, except in a single case, are the offspring of sickly stalks; and these, again, arise from various causes, of which many are under the control of the grower. How to preserve the health of the cotton plant, as far as this object is attainable by human agency, is not now the subject of inquiry. Where the crop is not entirely diseased, the plan of proceeding, having a sound staple in view, is unfolded in a subsequent part of this essay.

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* See article "Handling of Cotton;" So. Agriculturist, Sept. '42, pp. 463-464.

It is as true of cotton as it is of cereal plants, that a change of seed is beneficial. The planting of the same seed on the same lands, for an unlimited time, is one of the causes of the great inferiority of India cottons. If seed be taken from warm and dry grounds, and used on moist and cold soils, the result will be decidedly favorable; but if to these the climate also be different, the gain will be still more striking. The cottons of the sea-islands are rarely injured by frost; but as the soil, almost universally light and sandy, is exhausted, an interchange of seed with the argillaceous sections of the main land, would be mutually advantageous, where the same varieties are reared. The first, from the superior power of the land on which the plants had grown, would be furnished with a more productive seed, and a stronger staple; the latter would be benefited by the earlier maturity of the fruit, that would yield, too, a softer and finer thread. Profitable selections of seed, whether in reference to quantity or quality, might be made on every single plantation of the sea-islands, by taking from the clayey or tenacious parts of the field, or, in the absence of such a soil, from that portion where, from the inherent strength of the land, the product is invariably the largest.

The influence of seeds on vegetation is now so well understood, that a physiological law has been deduced, well deserving the attention of reflecting planters. "Every thing," says Dr. Brown, of the University of Liege, "which favors the disproportioned growth of vegetables, opposes or retards the propagation of fruit; and *vice versa*, the formation of fruit is hastened and forwarded at all times when exterior circumstances prevent the full development and disproportioned growth of the stalk." On this theory, confirmed by experience, a rule applicable to cotton may be established: use the plough or hoe, which tends to increase the growth of the plant, as frequently as possible before the fruit-bearing season; afterwards seldom, and then lightly. In concluding this branch of our inquiry, it might be pertinently added, that where production is secured, the quality of strength is obtained; a powerful argument, among many, in favor of planting little and manuring highly.

2. Length of fibre, usually indicated by the length of the pod, is traceable to the same source, and is improved by the same means to which its strength is indebted.

3. To secure a staple distinguished for fineness, has for several years been a desideratum with the ambitious planter. This, at last, has been accomplished, though it is doubtful whether, through his zeal and perseverance, the other qualities have been bettered in the same ratio; because the agents dependant on his will, which enhance the worth of these, rather detract from than increase its silky attributes. From immature pods we gather those cob-web-like filaments which at times have attracted so much notice. In this respect, the nippings of frost, the visits of the caterpillars, and

even the poverty of the soil, are not unfriendly instruments. As a general rule, the finer the texture the less the product. Of itself, therefore, "fineness," in the language of Mr. Houldsworth, a distinguished spinner of Manchester, "is a *positive evil*." "Cotton, however coarse, is, if *strong*, and of a fair length, good—that is, useful as far as it will go; but *weak* cotton, however *fine or long*, will make bad yarn at all numbers." This element of an approved staple is enhanced, not only by judicious annual selections, but by location, and the application of certain manures. A salt atmosphere is indispensable to its successful propagation. All other circumstances being equal, the plantations that are elevated and open to the ocean are the most eligible for this purpose. Rich and active manures, which develop large stalks and leaves, will never impart the quality of fineness to cotton; those that are free from animal matter, that act negatively or mechanically, or which operate principally by preserving the health of the plants, as salt clay-mud, salt, clay to sand, &c., are, for that purpose, mostly to be relied upon. Unripe cotton, it has already been remarked, is finer and softer than that plucked from the fully-matured pod. The cause is a natural one. The filaments of the latter, according to the microscopic examination of Mr. Bauer, a member of the Philosophical Society of London, are transparent glassy tubes, flattened and twisted round their own axis. The fibres of the former are simple, untwisted, cylindrical tubes, which never twist afterwards, if separated from the plant; but, when the seed ripen, even before the capsules burst, the cylindrical tubes collapse in the middle and form semi-tubes on each side, which give to the fibre, when viewed in certain lights, the appearance of a flat ribbon, with a hem or border at each edge.* In the efforts of the pod, therefore, to complete its work, it of necessity parts with a large proportion of its oleaginous property. On the contrary, all of the oil afforded to the fruit, not perfected by time, is retained. It is this which imparts to immature cotton the peculiar softness and delicacy, so perceptible to the touch.

4. To preserve uniformity of fibre, the pickings from diseased plants, or that have been much affected by rain or wind, should not be mixed with the general crop. This is also true in reference to the gatherings at the commencement of the season, and when, from frost, the pods have not fully matured. The bottom fruit is the least valuable, the middle the best, the top the finest. To effect our object in this matter, the giving of sameness of strength to the soil should be kept steadily in view. By a part of the land being well manured, and a part unassisted, labor and time are unprofitably expended, and a necessary property of the staple greatly injured.

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* Baines on Cotton Manufacture; Appendix, p. 536

However high the intrinsic worth of his crop may be, still, if the grower's attention at and subsequent to the time of harvest be not skilfully directed, the value of his field labors will have been materially diminished. To the mode of preparing *very fine* long cottons for market, then, as sanctioned by the practice of the sellers* highest in repute, the recommendation of the spinners of England, his own experience and observation, and the suggestions of inteligent friends, the writer is now ready to ask the notice of the Society.

As an indispensable pre-requisite to the accomplishment of the planter's purpose, large and airy rooms, or covered scaffolds, kept in the neatest manner, must be provided. To avoid, as far as posible, every cause of accumulation of dirt, only one laborer should be allowed to pass the threshold of the drying-house door. The business of this person is to receive the pickings of the previous day, to spread them or not, according to the state of dampness, to deliver the cotton to the manager of the whipper, if that machine be used, and generally to attend to the cleansing and ventilation of the apartments. The harvest of the first week or fortnight, from imperfection of quality, should not be mixed with the mass. The picking bags ought to be small, so as to compel the gatherers to empty them frequently. Spread the cotton, after being freed from decayed or stained parts and leaves, very thinly on the "sheet," in order to be exposed as much as possible to the action of the sun; for, subsequently, unless wet from rain, it is dried only in the shade. *On the following morning, do not re-assort, but convey the cotton at once to the drying-house*,† where it should be loosely spread, and a current of air allowed for several days to pass over it. Throw it then into heaps, but avoid packing. Its own weight will keep it sufficiently close. In these rules the main secret of good preparation is centred. With a view to extract all foreign matter, it is scarcely possible to examine fine cottons, if in a damp state, which is always the case when newly gathered, without producing stringiness, of which the spinners complain so loudly. When this takes place, every subsequent process of handling only increases the defect. On picking days the laborer can readily separate the prime from the inferior, as he is allowed to pluck but a little before it is exposed to the desiccative power of the sun; but thoroughly to re-assort on the morning

* E. M. Seabrook, Sen., of Edisto Island, and J. J. Pope, of St. Helena Island.

†There are some varieties of cotton of an unusually delicate texture, but naturally so disposed to stringiness, that in the pod the wool assumes a curled appearance, and when taken from it, the fibres adhere to the fingers, and unavoidably become tangled. The recommendation of not assorting the day after picking, applies principally to these cottons, which, except by the most skilful in preparation, should be avoided, when selections are made. If the cotton be open and easily cleaned, the common practice of a very thorough examination on the morning that succeeds the gathering, is a highly judicious one.

afterwards, which is now the general practice, a large quantity, previously compressed by the sheet or drying-cloth into a small compass, requires, necessarily, a complete disconnection of the parts, which, from the then moist condition of the cotton, cannot be done without injury. This is the principle cause of stringiness. When sufficiently dry, which might happen in a few weeks, or probably days, although it would be as well to allow the cotton to remain, without further examination, until the ginning season, it can then be handled, in the manner now to be stated, with impunity. The task of each assorter, to be performed on a latticed table, is from 30 lbs. to 60 lbs. according to circumstances. Only a small handful is taken up at a time. The beating it on the table, or between the hands, all pulling and tearing it asunder, and, indeed, every proceeding that tends to mat and intermingle the fibres, must be carefully avoided. It should be impressed upon the mind of the operator, that the interest of the master requires, not that a certain work is to be positively executed, but that what is done should be well done.

After this process, the cotton is taken by some planter to the gin, by others to the whipper. In despite of every precaution and the most untiring vigilance, there will still remain, after the assorting, some extraneous particles and imperfect filaments, which the aid of machinery alone can extract. But, in the removal of one defect, the whipper, in ordinary use, is liable to produce others that are much more formidable; that is, to create lumpiness or stringiness, as well as to increase the number of nitters of involutions of the thread. A very simple alteration—the covering of one side of the spokes with boards, or the substitution of boards for spokes, so that a smooth and solid surface is presented to the cotton in its evolutions—has, it is believed, obviated every difficulty. A machine after this plan was used so effectually by a very zealous and intelligent planter of St. Andrew's Parish,* that, in the opinion of one of the most extensive and judicious buyers† in Charleston, his cotton, the last season, was the best prepared he had ever examined. It was not, however, the whipper alone that brought about this result; a number of skilful operations was also resorted to.‡

In the various processes to which the cotton is subjected before it is conveyed to the bag, that of ginning demands, on the part of the owner, great circumspection. To this, if badly or carelessly performed, as much as any other, is some of its most objectionable features to be ascribed. Too much pressure on the roller gives to the wool a matted appearance; unequal pressure, where the three-clamped gin is used, will show a similar defect in one part, while the remainder, to be mixed with it, may be unexceptionable to the eye. The closer the rollers are brought together by the power of the screw, the greater is the labor, but the quicker is his

* Dr. Thomas Legare. † H. Gourdin. ‡ See Dr. Legare's letter.

task done, the very end the laborer has in view. Under the impression, therefore, that he is benefiting himself, he perseveres, whilst the master is certain, as crushed seeds and other unwelcome indications present themselves, that an unpardonable error has been committed. Again, to facilitate the toil of separating the seed from the wool, the ginner, with a dull knife or other instrument, is in the practice of making those parts of the roller which are encompassed by the clamps, rough or knotted. The consequence is the same as that produced by tight screwings. The cotton should issue from the gin in a loose and unentangled state. If otherwise, the subsequent necessary handlings will operate largely against its proper preparation. It is advisable that the ginned cotton fall into wooden boxes, permanently secured to the floor; and in order to encourage the faithful performance of his duty, only 22 lbs. weight ought to be exacted from the laborer on rainy or very damp days; in good weather 25 lbs.

The last ordeal, for every examination might well be so denominated, through which the crop passes, before it is packed in bags, is that of moting. This is not a difficult work, if the respective duties of the master and slave, in reference to the previous stages of preparation, have been well attended to. The rules already noticed, concerning assorting, are peculiarly applicable to the manner of treating ginned cotton. There must be no shaking, nor tossing, nor whipping, but only such an examination as can be effected without an incautious pulling assunder of the fibres. "A few crushed seeds or leafy particles," says Mr. Houldsworth, "are of little importance compared with the cotton being free from knots, nips and entanglements." The moting is only well done when its appearance, as it comes from the gin, is unaltered; or when it is difficult to distinguish it from *hand-picked cotton*. It is necessary, however, here to observe, that operation to be properly performed, depends on the one that precedes it. Mismanagement at any single stage, increases the labor of preparation, and by consequence depreciates the value of the article. The daily task of the moter is from 30 lbs. to 50 lbs.

The cotton is now ready to be packed, which is effected with a wooden pestle of a wedge-like shape. One female, who officiates as overhawler or re-inspecter, throws it loosely and in small quantities into the bag. To increase the weight of the latter, she rubs the exterior occasionally with a wet cloth. If, however, the cotton be greatly compressed, it will increase the difficulty of separating the fibres to the spinner, unattended with any advantage to the planter. Hence, by a few, the over-hauler is prohibited from aiding the packer with water at any time. As it is probable, that the instrument used in packing, is in part the cause of one of the complaints of the buyer, the writer has on several occasions suggested to his co-laborers the propriety of substituting the screw. By the application of this mechanical power, injury to the staple

in the progress of packing would be avoided, and the proper quantity for the bag regulated at will. The outlay for the screw and its appendages, would be re-imbursed, in a single crop, by the labor and time saved by the adoption of the new process.*

Having thus exhibited in detail the entire routine of the practice of the grower who aims at distinction, from the first day of harvest to the final act of consigning the cotton to the bag, it might not be irrelevant in this place to submit a few remarks on a collateral point. The cultivator of the soil is opinionative, and the follower of every other pursuit is governed by the dictates of what seems to him to be self interest. For years he has marked out for his government a particular line of proceeding, the fruit of his own reflections, aided by the *unacknowledged* suggestions of his neighbors. Indignant at the idea of seeking advice from any quarter, he doggedly plods on in his barren career, with indirect encomiums on his agricultural skill, and loud anathemas against the resistless influence of the elements. On the subject of this essay, and other equally interesting and more important topics, it can no longer be disguised that the planter is in need of much light: although the sum of the requisite information is probably obtainable at home, yet, the little or more that each individual possesses, instead of being patriotically and voluntarily thrown into the general mass, is avariciously confined to the narrow limits of his own understanding. Even the influence of agricultural societies, in its endeavours to effect a reform on this head, has been unavailing. The writer, with many of his associates, in the absence of facts, and the opinion of the more experienced of his profession, has frequently declared over his signature, that the custom of drying cotton solely in the shade was a palpable error. In practice he saw that it largely increased the labor of ginning and moting—that of itself, it favored the production of stringy and "nippy" cotton, and finally that, from the heated state of the wool, which after the necessary handlings still continued damp, it rendered the seed in a measure unfit for planting. He now believes, that our continued unprolific crops, or the prepondering influence of disease and delicate stalks, which disfigure the field of the grower and impoverish

* Extract of a letter from Messrs. Gourdin, Matthiessin & Co., dated Charleston, October 13th, 1842. "There is quite a prejudice in England against Sea-Island cotton in square bales, and the few that have been sent there, have sold at less than the market value in round bales. We are, notwithstanding, of opinion that the screw must be less injurious to the cotton than the pestle, and we doubt not that a few bales of the finer cottons put up in that way, and sent to a spinner direct, would give satisfaction; but until brought into favor in this manner, it would not answer to put them on the Liverpool market for sale.

About twenty-five years ago, Mr. Coffin, then one of the few cotton growers of very fine cotton, sent a very small portion of his crop to England, in eight square bales, packed with the screw. These were not approved of, but the opinions of the spinners themselves have undergone quite a change since that time. Stringy or grassy cottons were then much liked, but now that an open free preparation is preferred, it seems to us that the screw is much better adapted to the purpose than the pestle."

his purse, is in part attributable to the sappy condition of the seed, in which nature obviously designed that it should not long remain. The objection is not to the agency of shade, which in time, if aided by a free circulation of air, and the cotton be very thinly spread, would dissipate the watery particles, but that, from crowded rooms and the compact manner of putting away the daily pickings, the seed becomes affected by the steam generated by its own wetness. Messrs. E. M. Seabrook and Pope, never expose their cotton to the sun, except on the day on which it is gathered, unless after a rain. This, however, is not conclusive evidence that their example ought to be implicitly followed; for even they, from the admission of Mr. Houldsworth, have on this point something to learn. The matter to be determined is, how to expel the water without divesting the fibre of any portion of its oil. The sun will accomplish this in a few hours. The shade, unless there be open space enough, probably never. Cotton is sufficiently dry, when the seed resists or does not yield to the pressure of the fingers. The prominent objections of the spinner to the fine cottons of South-Carolina, are, as already incidentally set forth, that they are stringy, twisted, knotty, and abounding in small white specks, "which, upon microscopic examination, appeared to be minute fibres, interlaced like the misletoe plant." The moister or finer the cotton, the more readily the threads cohere and intermingle, and in the several processes to which it is subjected, especially if there be a necessity for more than ordinary care in the moter's department, the exhibition of the wool in a loose and disentangled state, may, in defiance of every cautionary expedient, be entirely defeated. On this subject, however, enough has been said, at least to excite reflection. The twisting of the cotton filaments, technically called "nitters" or "nips," results almost exclusively from natural causes. They may be created by the injudicious use of the whip, or by over handing, but the grower is rarely to blame for their existence.* In cotton taken from healthy plants they have never been seen. Whatever, therefore, diseases the stalks, causes their generation. In extra fine cottons, undistinguished for strength or length, they are oftener observed than in other qualities. Hence, an additional motive for more attention to the "first requisite" of a good staple. The principal long-staple cottons are Sea-Islands, Brazils of every kind, Demerara, West-India and Egyptian. "All the South-American, and most of the West-India cotton of this character, is produced from the shrub, and not from the herbaceous plant." In this country, long-cottons may be

*See report of the committee of Agricultural Society of St. Johns' Colleton, published in the Southern Agriculturist, Vol. II., December, 1838.

"The expense to the spinner for picking out the nips, is from 9d. to more than one shilling per yard, upon his finest muslins, which is equal to from 10s. to 30s. upon each pound weight of muslin." Letter of G. W. & Co., to Brown & Welsman.

appropriately divided into three classes—the common, the fine, and the superfine. The last can only be profitably raised immediately on the sea-shore. With the first and second, the Egyptian, Pernambuco and Demerara cottons are rivals, and in general, decidedly superior to the common sorts in all the natural attributes of staple. The American cultivator, therefore, can continue to maintain his supremacy in market, only by a style of preparation, which the foreign grower as yet has been unable to equal. In superfine cottons, the South-Carolina planter has no competitor. The number of bales for which there is a demand, is very limited.* In consequence of the delicate constitution of the plants, their extreme liability to disease, the inconsiderable quantity of wool which the bolls contain, and the heavy cost in putting them in a saleable condition, the price of these cottons should duplicate that of fine, and fine that of inferior qualities. These rates nevertheless have not been observed, and the main cause is known to be the absence of care in the handling, without which, though all other descriptions are certainly lessened in value, the superfine cottons become measurably worthless, if not utterly unfit, for the fabrics for which they alone are specially designed.†

To the planters of the interior, it may with great propriety, in closing, be observed, that although the aim of this essay has been to show the necessity of sending the long-staple in an improved condition to market, still, it must be obvious, gentlemen, that the remarks which have been brought to your notice, apply with some force to short cottons. In the business of growing the former, the number is small. The latter can be advantageously raised in nearly one half of the globe. If the same varieties, in relation to quantity and quality, do not distinguish these, yet it is sufficiently large to require on the part of the producer a thorough examination. The practices of permitting cotton to lie long in the field, subject to the hurtful action of wind, rain, of the sun and dews, and, in gathering, in aiming at quantity, in disregard of cleanliness, are obviously erroneous. Short cottons too rarely arrive in market in close and sound bags, or uninjured in the transportation. These, however, are faults easily remedied, as well as the more common one of exposing the packages, even after they have been cut by the buyer, to the inclemency of the weather. Only within a few years has the planter, by exchanges of seed, aimed at more productive crops. Let him now be assured, that if in that respect he can be materially assisted, and improvement in the staple is equally

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* Extract of a letter from Messrs. G. M. & Co. "The quantity of *extra fine* Sea-Island cotton wanted for consumption, depends entirely on the price. At the prices of the last season, say from 50 to 70 cents, France requires a very small quantity, not exceeding 30 to 50 bales. The supply to Great Britain last year was rather deficient, but at five to ten cents higher it would have been ample. At 40 to 60 cents, consumption would be doubled."

† See Mr. Houldsworth's letter.

within his reach. The South-western grower looks exclusively to quantity. The natural richness of his lands insures him strength of fibre. An annual importation of seed from that region would, on your less fertile soils, not only be followed by a larger harvest, but as certainly by a better quality. As an occasional substitute for importation, the selection of seed from fully matured pods of healthy stalks, growing on the best land of the plantation, might be resorted to. If, however, he be disappointed in his expectations, the grower, in order to remedy the defects of a poorer soil, will will be compelled to look with a scrutinizing eye to the proper handling of his crop. In a word, he must make preparation, as far as the object is attainable, to compensate for the physical disadvantages under which he labors. I respectfully submit to the consideration of the Society, whether it would not be advisable to appoint a committee to ascertain, by personal examination and trial, the number of profitable varieties of short cotton—having reference to production, and the relatively valuable requisites of staple.

WHITEMARSH B. SEABROOK.

Edisto Island, Nov. 22, 1842.

GUANO.

Many inquiries have been made of us during the past spring, in relation to the celebrated Peruvian manure, called Guano. It gives us much pleasure to throw before our readers the following article from a late number of the British Farmer's Magazine, published in London. We think it will be read with a good deal of interest. In the purchase of manures for enriching his lands, it is an important object with the farmer—particularly with him who has them to haul a considerable distance—to obtain those which have the most strength in the least compass, and thus diminish the heavy expenses of transportation. The Guano, it would appear, possesses to a great extent, this advantage. We have not heard that any has been brought to this city. If, however, the accounts of its usefulness continue favorable, and the article can be obtained from its native location, the enterprise of our merchants will not fail soon to place it on our wharves.—*Editor Far. Cabinet.*

In your quarterly number for July, last year, pages 176 to 193, I presented your readers with the account of an interesting meeting of the County of Kerry Agricultural Society, from which arose the publication in this work of the best concentrated documents, analyses and results, then known as to the new (but yet old) and celebrated natural production, used as, and *called* manure; the Spanish name for *manure* being *Huano.* This article has been used for ages by the ancient and present Peruvian agriculturists, and only imported into England the last eighteen months, during which

time, 3000 tons have been sold to manure the worn-out soils of England. This quantity has covered upwards of 40,000 statute acres. The north county graziers are putting 50 to 100 tons on one farm. They declare it saves them five pounds per acre, yielding them 20 to 30 per cent. larger crops, and bringing them to maturity much earlier—so very desirable to the British farmer, in our damp and humid climate. Guano sold at 22s. to 28s. per cwt. last year; it is now only 14s. to 15s. per cwt., and I believe even 12s. to 13s. per cwt. for large parcels, allowing a profit to the dealers. It is the most permanent fertilizer ever discovered; is chiefly aromatic; but the old deposits or strata, where found, are not so, the ammoniacal properties being concentrated and concreted. It remains for a long period of time in the land, and is not washed out by the rains; neither is it volatile, so as to rise into the air, as Professor Johnston, of Durham, states in his lectures on Agricultural Chemistry, consequently exercising a beneficial influence on the growing crops periodically, being a compound of nature consisting of the greatest variety of phosphates, muriates, urates, phosphoric, lythic, acids, organic matters, &c., of any article found in a natural state, all contributing food annually to the plants, as required by them.

From the numerous chemical ingredients composing the guano, no doubt it is of volcanic origin, in part; and as vegetation can only draw from the soil sufficient food in one season for its support, no more and no less, for its due development, growth and maturity, there is, of necessity, a supply of guano left in the soil, constantly drawing down from the atmosphere fresh ammoniacal life by the rains, which the "guanoical" particles keep in the soil, by means of their numerous inorganic matters, concretes, acids, &c., until it is wanted by the succeeding year's crop. So that one dressing of two or three cwt. per acre, (costing £1 10s. to £2,) will last many years, without further manure of any sort, by digging the soil over with a fork; and the agricultural professors, Pusey, of Oxford, and Johnson, of Durham, recommended the guano manure to the English farmer, at 20s. per cwt. as being a permanent and excellent nourisher of the soil. At times it is worth 12s. per cwt. in Peru. About fifty ship loads have arrived in England, paying as high as even £6 per ton, freight; and the total quantity imported to the present time, is about 12 to 15,000 tons; 3000 tons being consumed during the last eighteen months. The quantity left for next season, would not cover more than 100,000 acres; and I hear little more is coming, the loss being heavy. The farmer can scarcely expect it at a lower rate than it is at present; and if the London speculators get hold of the present stock—and we understand they are in treaty for it all—they may monopolize guano, and raise the price to double its present rate, as they did nitrate of soda three years back; when it may be adulterated, as nitrate of soda was at that time.

I would recommend every farmer to get it through a respectable agent in Liverpool, who will see that he gets the genuine guano, direct from the Queen's bounded stores, as imported from Peru; then he will have no fear of his crops failing, if properly put into the soil.

Guano is well suited to the humid climate of Great Britain, and especially Ireland, as by its peculiar chemical and attractive ammoniacal concretes and properties, it feeds the growing plants faster, which will enable the British farmer to get in his crops earlier; thus securing a longer period and many more chances of fair weather to get in his produce from the ground. At all events, it is well worthy of further and extensive use. Farmers should not be so timid. A few pounds would secure acres of large and good crops. Guano is considered, by all the accounts I have heard or read, as a treasure in Peru, and one of the valuable gifts of Heaven, that enables them to grow food for man and beast, from the barren sea-side, up to the rocky rude mountains, five, ten, twelve, and even 15,000 feet above the level of the sea. Without this guano, the Peruvians could not have raised crops to feed 15,000,000 of people that once inhabited Chili, Peru, &c. No doubt it must be one of the treasures of Peru, we say again, when the agriculturists there are complaining to the Peruvian government, and protesting against its exportation, for fear they should be short of a supply. The English, they state, have taken all our gold, and now they are taking all our guano also. However, the Peruvian government do not let it go for nothing; they have obtained £200,000 for allowing France and England to take it *for one year* only from their country. I understand the Belgian, Dutch, German, and French agriculturists are using the guano manure formation, as well as our own farmers in England, Ireland, Scotland, and Wales, and that considerable shipments have been made to the West-Indies, as well as the East-Indies and St. Helena.

Guano is the best compound (a dry *compost*) fertilizer and nourisher of soils yet discovered, and can only be drawn out by the growing crops, in a course of years. In Peru, they have in the moutains, almost perpetual humidity, rains and dews near nine months in the year, and the sun only shines at intervals.

It was stated in July last, there were 3000 acres covering weekly, and that 1½ to 2 cwt. per acre, was the only outlay necessary; the guano to be well mixed with clean yellow sea-sand, ashes, old mould, charcoal, night soil, scrapings of the roads, and common deal, or any kind of saw dust; four parts of any of these to one part of guano, to be well mixed, and the guano first to be finely powdered, then to be thrown on the land, just before showers commence, broad-cast. In high districts, or dry weather, it is highly desirable, when convenient, and in all cases, to irrigate the land with a water-cart, that the guano may quickly get to the

rootlets of the plants, as it can scarcely be put on the land in too small a quantity. In Peru they put it round the plant with finger and thumb, like pinches of snuff (guano is very like snuff,) and water it afterwards. In some cases it would be best to put it on in a state of solution; 12 gallons of water to 4 lbs. of guano, for hot and green-house plants, fruit trees, &c.

Naturalists disagree as to the origin of the guano formation. This is of little moment. In some parts it is like the sand of the desert, fine as the finest powder; in other islands, hard as the solid rock, 20, to 30, and 40 feet deep. In the soft portion, all sorts of animals burrow in it like rabbits, thus living and dying in the guano. It is the best compound in nature, ready for the English farmer. Surely if the British farmer labor and toil to make his compost from his own stable and farm-yard manure, he would prefer to give the finish and polish to the earth, to induce dame *nature* to give her increase in due season, rather than run the precarious risk of his own compost failing, either from its being washed out of the soil by the rains, or not being properly compounded for the crops he may require.

The results from guano are highly satisfactory for all crops. A more or less quantity may be put on any field, according to the kind of produce required, the soil to be manured, and the condition of the land. And every farmer should study these points: he should read works on Agricultural Chemistry, Geology, Meteorology, Electricity, &c., as all the actions of nature, with the weather, I need not tell the scientific farmer, bear upon his success as an agriculturist. And if he will carry his buisness to perfection, he should consult his neighbour and medical man, on all intricate subjects, as he would in case of a disease amongst his cattle and stock, or if one was out of health in his own family.

Suggestions for comparative experiments with Guano and other Manures.

In addition to the foregoing, we take the following from the Appendix to Johnston's Agricultural Chemistry and Geology. It will be observed, that while the Farmer's Magazine ascribes to Guano a *volcanic* origin, Professor Johnston speaks of it as an *animal* production. The farmer will leave this point for others to settle, while he is careful to look around, and see if his individual interest may be promoted by the use of this extraordinary article, when it shall come within his reach.—*Editor Far. Cabinet.*

Guano is the name given in South-America to the dung of the sea-fowl, which hover in countless flocks along the shores of the Pacific, and which, from time immemorial, have deposited their droppings on the rocks and the islands which are met with along the coast of Peru.

Besides the fresh white guano which is deposited year by year in these localities, there exist in some spots, large accumulations

more or less buried beneath a covering of drifted sand, which have been thus buried and partially preserved from an unknown antiquity. This ancient guano is of a brown color, more or less dark, and forms layers or heaps of limited extent, but which are said sometimes to exceed even 60 feet in thickness.

In the time of the Incas, this substance was known and highly valued as a manure—the country along the coast, for a length of 200 leagues, was entirely manured by it—the islands on which it was formed were carefully watched and preserved,—and it was declared to be a capital offence to kill any of the sea-fowl by which it was deposited. Ever since that time it has been more or less employed for the same purpose, and much of the culture now practised on this thinly-peopled coast, is entirely dependent for its success, if not for its existence, on the stores of manure which the sea-fowl thus place within reach of those parts of the country which are susceptible of cultivation.

In modern times, however, the access of foreign shipping, and the want of careful protection, have driven away many of the sea-fowl, and lessened to a very great degree, the production of the recent guano. Thus the country is more dependent than in former times, on the more ancient deposits, which are now assiduously sought for, and when discovered beneath the sand, are carefully excavated and transported to the sea-ports for sale.

The dung of birds of all kinds, when exposed to the air, gradually undergoes decomposition, gives off ammonia, and acquires a brown color. As this ammonia is one of the most fertilizing substances it contains, it will be readily understood, that the old brown guano is much less valuable as a manure, than that which is recent, and white ; hence the care of the ancient Peruvians in collecting the fresh, and their comparative neglect of the ancient guano.

When the brown guano is put into water, a large quantity of it —sometimes 70 per cent. of the whole—is dissolved. Hence it is, because the climate of Peru is so dry and arid, that in the plains rain scarcely ever falls, that the guano can accumulate as it is found to do. North and south of this line of coast, where rains are less unfrequent, such accumulations are not met with, though the birds appear equally plentiful, and it may be safely stated that, had the climate of Peru been like that of England, the rains would have washed the guano from the rocks almost as rapidly as it was deposited.

Of the brown guano, several cargoes have lately been brought to England by an enterprising merchant in Liverpool, and it has been deservedly recommended to the attention of British agriculturists. It has already been tried upon various crops, both of hay and corn, upon turnips also, and upon hops, and there can be no doubt whatever, that in our climate, as well as in that of Peru, it is fitted to promote vegetation to a very remarkable degree.

This brown guano varies much in quality, according probably to the degree of exposure to the air to which it has been subjected, or to its position in the deposit from which it has been dug. Two different portions, taken at random from the same box, gave me the following very different results :—

1°—Water, salts of ammonia, and organic matter, expelled by a red heat,	23.5	per ct.
Sulphate of soda,	1.8	"
Common salt, with a little phosphate of soda,	30.3	"
Phosphate of lime, with a little phosphate of magnesia and carbonate of lime,	44·4	"
	100*	

2°—Ammonia,	7.0	59.3	per ct.
Uric acid,	0.8		
Water, carbonic and oxalic acids, &c. expelled by a red heat,	51.5		
Common salt, with a little sulphate and phosphate of soda,		11.4	"
Phosphate of lime, &c.		29.3	"
		100	

According to M. Winterfeldt, this brown guano is sold at the ports near which it is obtained, at about three shillings a cwt. It might therefore, if this be correct, be imported into this country, and sold at less than ten shillings per cent. The price at present asked, however, is 25 shillings per cent., a cost at which it is doubtful if the English agriculturist can afford to use it.

In any case, it seems impropable that the guano can continue to be imported into this country for any length of time. It is absolutely necessary to the cultivation of the land in Peru,—and it is also diminishing in quantity,—the first settled government, therefore, which is formed in that country, must prohibit the further exportation of a substance so important to the national interests.—It is a matter not unworthy the attention of chemists, therefore, to consider whether a mixture similar to the guano, and of equal efficacy, cannot be formed by art—not only at a cost so reasonable as at once to make the British farmer independent of the importer,—but also in such abundance as at the time to place so valuable a manure within the reach of all.

The following mixture contains the several ingredients found in guano, in nearly the average proportions; and I believe it is likely to be at least as efficacious as the natural guano, for all the crops to which the latter has hitherto been applied in this country :—

* The first contained also 8 per cent. and the second 1½ per cent. of sand, which has been left out of the true composition of the guano considered as free from sand.

	£	s.	d.
315 lbs. (7 bushels) of bone-dust, at 2s. 9d. per bushel,	0	19	0
100 lbs. of sulphate of ammonia,* containing 35 lbs. of ammonia, at 20s. a cwt. - - -	0	18	0
5 lbs. of pearl-ash, - - - - -	0	1	0
100 lbs. of common salt, - - - - -	0	2	0
11 lbs. of dry sulphate of soda, - -	0	1	0
531 lbs. of *artificial guano* cost, - - -	2	1	0

The quantity here indicated may be intimately mixed with 100 pounds of chalk, and will be fully equal in efficacy, I believe, to 1 cwt. of guano, now selling at £5.

For the Southern Agriculturist.

INSPECTION OF COTTON AND PROVISION CROPS.

The Committee appointed by the St. Paul's Agricultural Society, to inspect the cotton and provision crops, entered upon the performance of that duty on the 6th day of September last.

The first day's ride was confied to the section of country about Pon Pon. The crops there, were found in good condition, excepting one. Both the cotton and corn there, appeared to have been injudiciously cultivated. We take pleasure in remarking here, upon the fine condition in which we found the crop of Mr. Hawkins King; both cotton and corn promised an ample return for his exertions, though a large portion of the cotton was planted in wet lands, yet from the complete mode of draining† adopted by him, it had not suffered from the rains, much more than the dryer parts of the field.

The second day's ride was in the direction of Slann's Island; we found the crops in good condition, excepting two—one of these had evidently been injured by the quantity of grass left in the field at the time of the last hoeing.

Here we would take the opportunity of remarking upon some notions prevailing upon this subject. It is supposed by some, to be necessary, to leave grass in the field, to protect the cotton from the adverse influences of rain. This, we believe, to be a mistake.

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* Sulphate of ammonia is now manufactured largely at Glasgow, and may be had for less than 20 shillings a cwt.

† Every task line was cut in the centre by a drain, as well as the stake paths.

Experience has taught us, that grass and cotton cannot grow together with any advantage to the latter, or indeed, to any other growing crop; for though the grass which grows after the cultivation of the crop has ceased may not injure; yet we doubt whether any positive benefit can be derived therefrom. We would recommend, that a field of cotton be laid by, perfectly clear of grass and weeds, and that which grows afterwards ought not to be disturbed. Others think that the cultivation of cotton should cease by a certain day of the month. This supposition is obviously founded in error, because, in some seasons, the crops are much more advanced than in other seasons at the same date, reference ought, therefore, to be had to the state of the crop, and not to the day of the month.

The other crop to which we have alluded, was injured by water. It surprises us, that any man should plant cotton in wet lands, without adequate draining; it will not be sufficient, that the cotton beds be half out of water, but no water ought to remain between the beds for any length of time, though but an inch deep, or inevitable injury will be sustained; as many drains ought to be dug, as will be necessary to remove every particle of water from the surface of the land.

We here think it proper to remark, upon the fine condition which the crop of Col. John S. Ashe, presented to us on that day; every part appeared to promise an abundant return for labor bestowed. This was decidedly the best crop we had yet inspected; it was estimated at 150 weight to the acre.

On the third and last day, we visited the crops of the members of the Society, about Toogoodoo, most of which, both cotton and corn, were in good condition. Two, we would notice, as being then remarkably fine. The crop of Mr. Morton Clement promised so well, that we estimated it at 180 weight to the acre; and that of Mr. William Simmons' on Yonge's Island, at 250 weight to the acre.

In conclusion, the Committee would remark, that of all the crops inspected during the past season, none were estimated above 160 weight, that was not manured; whilst those which were estimated much above, we know were highly manured, and likewise, those which fell much below that estimate, had little, or no manure applied to them; so that it appeared to us, that the proportion of

cotton to the acre, almost invariably kept pace with the quantity of manure applied.

From the foregoing facts, we would merely suggest, for the consideration of the members of this Society, whether each would not find it to his interest, to plant less cotton, and more provisions to the hand—manure more highly, and select such portions of his land, annually, as are best adapted to the production of cotton. By pursuing such a course, we believe, that much more will be realised to the hand, than has been usually made in this parish.

All of which, is respectfully submitted.

WM. E. SIMMONS,
JOSIAH McLEOD,
JAMES KING,
} *Committee.*

SWEET POTATOES, SUB-SOIL PLOUGH, &c.

Medows, 14th, June, 1843.

DEAR SIR,—This being a rainy day, (the third in succession) I am seated at my desk, and among others, I think of you, and of your young and promising "Planter" I had hoped to be able the next year, to give you a good account of an acre of potatoes which I have planted in rice-straw, tailings, and oak-leaves, but the continued drought of April, May, and the early part of this month, together with the depredation of ground-moles, will, I fear, leave me nothing satisfactory. I can give you, however, the result of a small experiment with this valuable root, the last year. Although highly satisfactory to me, it falls short, in production of results from other methods of cultivation, of which I have been told repeatedly. But this method I have never known practised before, for sweet potatoes; and, I am disposed to believe, it possesses the merit of being available almost as fully on poor land, if it be drained, as on the richest.

In April, 1842, I planted eight half-acre rows, (i. e. 150 feet in length,) five feet apart, by laying the potato seed at the usual distance, (eight inches apart) on the level unbroken earth, and covering them, each row to itself, to the depth of 12 inches, with tailings, the short straws, chaff, and trash which are blown off and swept into a heap, during the process of winnowing rice. All the seed did not vegetate, but the plants which did come up, grew rapidly and soon covered the beds entirely. They were hand-picked once in the summer, some scattering grass seeds in the tailing having germinated, but the hoe was not required for them till November, when they were dug. It was then an interesting sight to a farmer, to see the flattened beds, as if elastic in their nature, spread out towards each other. The digging was merely nominal. It was only requisite to remove the thick covering of

vines, and roots of the largest size were exposed to view, ready to be plucked with the hand, or rolled out by the hoe. The product was five bushels to the row, equal to three hundred bushels per acre—the great bulk was made up of roots weighing from 2 to 4 lbs., but there were several weighing 5½ and many 4½ and 5 lbs. The vines were not cut in the growing season.

I am glad to find you recommending, by means of selections, the use of the sub-soil plough. There is a good deal said about it in the two last volumes of the "Farmer's Register," then Mr. Ruffin's paper. I understand it is used extensively and with great benefit in Pennsylvania, Maryland, and elsewhere in this country; and that in Great Britain, it has revolutionized the agriculture of certain districts of country.

I have used one of moderate size this year, in preparing my corn-land, and it seems to me, the corn has been much less affected by the late drought, than it would otherwise have been. I am not a cotton-planter, but it seems to me, that to the cultivation of this plant, having a tap-root which seeks to penetrate deep into the earth for sustenance and moisture. the sub-soil plough of large size, to be drawn by two yoke of oxen, would be admirably adapted.

By the way—talking of cotton, I cannot refrain from telling you of a crop made in your own district, which does credit to the Planter, the Pee Dee country, and to Carolina.

In March, of this year, Col. JOHN N. WILLIAMS, of Society Hill, in concluding a letter to me says—"I have all my crop of cotton now packed. It turns out twelve hundred and twenty-two (1,222) bales of 300 weight, to nine hundred and fifty (950) acres—provision in abundance, and a boat-load or so of corn for market."

I am respectfully, R. F. W. ALLSTON.

[*Planter, Columbia, S. C.*

HINTS FOR RENOVATING OLD SOILS.

Heretofore the farmers of this country have cultivated a soil enriched for ages by the yearly addition of a fresh stratum of mould. From the first existence of vegetation upon the dry land, decayed plants, leaves, &c., have continually furnished a supply of manure, which the winds have liberally spread abroad. As the supply was annually greater than the consumption, the earth, unexhausted by its productions, increased in fertility. The thick layer of vegetable mould which covered the face of the earth was a store-house of food for plants, and this quantity increased by the conversion of wood into ashes, by clearing. It is not wonderful then, that for some years, newly cleared settlements should abonnd in produce, and require little more labor than that of ploughing and reaping; for during this period, the provision is wasting, which for centuries had been accumulating. But the time will come,

and indeed has come in many sections, where the soil has been exhausted by improper cultivation, and is now too weak of itself to make plants grow with their former luxuriance. The grand question now presents itself,—"how shall this soil be renovated and brought back to its former richness and fertility?" My answer would be, in addition to manuring, to break the under crust, opening and stirring the sub-soil, and partially mixing it with the upper soil, by which means, it so alters and disposes the earth in which plants are rooted, that the radicals shoot more easily and more extensively through it, or in other words it becomes a better filterer for straining and applying nourishment to their inhaling or absorbing vessels.

It is a well established fact, or axion in agriculture, that the deeper the soil is, the more favorable will it be for the purposes of cultivation. To produce this desideratum, several plans have been adopted, either by thorough trenching with the spade, or by the use of the sub-soil plough. Air and water are the chief instruments which nature makes use of to enrich the earth.

It is by close attention to passing events, that any desired object can ever be obtained. As far as experiments have been made, we find the earth liberally affording its produce, in ten fold quantity, and the land that now supports one hundred inhabitants, may be made to give equal enjoyment to a thousand. But in this stage a well managed farm must be carried on with more labor, expense, and more exact skill. The most profitable system of culture is that which pays the greatest per cent. on the money laid out in cultivation, while the land is greatly increasing in its productive powers, is a truth which no one will attempt to deny.

For the last four or five years, I have had my attention directed to the great benefits derived from sub-soil ploughing in Europe, and have felt very anxious to obtain an implement for that purpose, adapted to my soil. For three years I have been making some experiments with merely an apology for a sub-soil plough, as it only penetrated about five or six inches below the bottom of the furrow made by the common plough, the share was thin and flat, and only three inches wide at its broadest part; still with this simple, and I might almost say ineffectual machine, I could see a very perceptible difference in the appearance of the crop, more especially in a drought. Corn in that part of the field where the soil had been stirred deep with the apology, (for that is the name I gave it,) maintained a dark healthful color, while that adjoining, that had not been stirred with the skeleton or apology, turned yellow, had a sickly appearance, and the leaves curled. In fact the difference was so apparent, that it was noticed by those passing by on the road, although at some distance. I tried it in my carrot and beet field, with equal success. I have also used it on stiff loam and on soil inclining to sand, with decided advantage. This I was not prepared for, as I had always supposed such soil would

not be benefited by it; but on examination, I found the sub-soil below the reach of the common plough, very compact and nearly as hard as a beat, on track on the surface.

As for myself, and from my own experience, I entertain not a doubt of the utility of deep ploughing: not by turning up the under soil, but by following in the furrow, made by the first plough with a real subsoil-plough, which if properly constucted pulverises and stirs the earth from 12 to 14 inches. Indian corn and all tap-rooted plants in such a mass of loosened earth, would not I am confident, suffer much from an ordinary drought. Like a sponge, it would absorb a vast quantity of rain-water, and become a reservoir to supply the wants of the plants. Nothing is more common in a dry season, than the rolling or curling of the leaves of corn, and that circumstance is often mentioned as an evidence of the severity of a drought.

There is another advantage in sub-soiling. If the season is wet, it has the effect of partially draining the land and causes the water to settle and carry with it any vitriolic or other noxious matter.

I am not aware that sub-soil ploughing has as yet in this country, received much attention, or been tried to any extent, but from the experiments I have made, and with a very indifferent implement, the results have been such as to warrant me in the belief that it will prove of very great advantage on old soils that have been long under cultivation. B.

[*Central New-York Farmer.*

BEET-ROOT SUGAR.

The condition of the culutre of Beet-root Sugar in France, and the effects of the high duties necessary for its protection in depressing the interests of the French colonies, have given rise to a singular question, which was in discussion by the Chamber of Deputies, at the date of our latest accounts from Paris. The French government for the purpose of getting rid of the difficulty, have proposed to abandon the beet-root manufacture, and to indemnify the proprietors of the betterave establishments. The commission of the Chambers have recommended a substitute for the ministerial scheme, consisting of a complex system of duties, to vary from year to year, according to the amount of sugar produced. The following is an extract from a speech of Mr. Mermilliod, who being a deputy from Havre, is a supporter of the navigating interest, and in favor of suppressing the domestic manufacture, for the encouragement of foreign trade. He began by saying:—

"That the measures tried in 1837 and 1840 were powerless palliatives, and that now a radical and absolute solution of the question was imperative. The representatives of the maritime

interests had been excluded from the commission by a kind of treason; the result was, that the commission had produced a plan which displeased every one, and brought on a reaction. The *status quo* was impossible; but so was the plan of the commission. Since 1828, the epoch of the development of beet-root, the revenue had lost upwards of 160 millions of francs by beet-root. The commission would put a stop to this, and, at the same time, so far protect beet-root, as to limit its production to sixty millions of pounds, leaving colonial sugar to supply 170 millions. If home production surpassed the 60 millions, it was to pay five francs additional duty for every 10 millions of pounds produced. But this sliding tax, calculated on the past year and harvest, to be applied to the year and harvest yet to come, would prove absurd. The most plentiful year might thus pay a *minimum*, and the most scarce year a *maximum* of duty. Then there was the facility of fraud in the returns, not perceived now, when the producers were interested in swelling the apparent amount of produce, but easily practised hereafter. Then, too, were the beet-root manufactures to limit or mete the supply without associating? One or two manufacturers, *recalcitrant* or false, might disturb the whole arrangement, and produce that rise of the duty which would fall on the manufacturer who kept in the due limit." M. Mermilliod then sought to refute the assertions and arguments by which the commission represented French shipping engaged in the colonial trade as not on the decline. "If the number of sailors seemed to be increased, this was owing to the press and the war measures of 1840, which forced so many landsmen on board of ships. There were nineteen vessels now in the port of Havre rotting, because the owners would not send them out unprofitably in ballast. The suppression of beet-root would create a demand for 40,000 tons of shipping." For this reason, and for the sake of establishing French influence in the Brazils, the deputy for Havre entreated the Chamber to prefer the project of the government, which suppressed beet-root and indemnified the growers, to that of the commission.

M. Garmer Pages began by declaring, that the "low price proceeded, not from the over-production of sugar, but from the ruined state of the colonists, obliged to borrow money at three or four per cent. a month, and forced to consign their goods to whoever would make them an advance, in whose hands they thus fell, without being able to stand out for a price. Other modes should be found of putting the colonies and their population in a sound state, than the ministerial one of sacrificing to them what was so conducive to the progress of agriculture as beet-root. The minister wanted to abolish this domestic source of wealth, in order to make commercial treaties abroad with sugar-growing powers. This was not popular with the Dutch or Spanish colonies. It was only popular with Brazil, but it would be better to defer this treaty to future

period, when colonial production of sugar was diminished by slave emancipation, and when consumption had increased. Then Brazilian sugar might be admitted without injury to any interest.

[*Boston Paper.*

CURING PEA VINES.

Your correspondant C. M., in calling the attention of your readers to the curing of the pea vine, deserves at their hands, thanks. It is an important means of keeping stock, which, if well cured, will do better than any other species of forage we have. I have seen it cured for 20 years, and as the mode is different from his, I beg to give it you—leaving to your choice to dispose of as will suit you. After you have either cut the vines near the ground, or pulled them up, leave them in a swarth, until they have wilted —not taking longer than half a day.—Then, with forks, throw them up into hand cocks, small at the base, and as high as will not press together, only by their own weight; after remaining thus for a couple of days, open out for an hour or two in sun and haul up—Having provided a rail pen, with surplus rails, and boards to cover—then put rails in for floor a few inches above the ground—a foot or so apart, on which throw in some 2 to 3 feet thick the vine; put on another floor of rails and fill again 2 or 3 feet: continue thus until pen is 10 or 12 feet high and cover. Many persons fork in a layer of straw of any kind, oats, rye or wheat, with every layer of the vine;—many use salt, in both ways, and no question, but what it is a saving in the end.

Now for the reason—if the vine is cured as "fodder or other hay" you will lose every leaf, much of the stem, and one entirely unacquainted with the vine, would lose nearly all—for they would let it remain until dry. Lucerne, clover and pea vine require the same treatment, there being so much sap in the stalk, that you would lose all the smaller part, before the stems, or thick part, was cured—but by merely wilting, the leaf and leaf stalk is retained in a degree, and by throwing into cocks, the air passes through —the moderate heating it receives, has a tendency to ripen the juices, making sweeter for stock, and toughens the vine—and very little exposure will cool it off. Some persons pull and put in pens as above, and the use of salt will protect—it may mould a little, but try the mouldy part, to even a well fed mule. Those who are saving to their land all they can, will not pull up the vine, but cut off with a grass knife, saying the tap root is a benefit, and ought not to be taken from the land. One thing, I press on those who have no experience—rather run the risk of losing, by having put up too green, than too dry—I have seen them in a house 14 by 18 and 12 feet high, when 2 to 3 feet from the wall they were very hot—yet stock ate them very greedily. I thought they were lost.

Yours. H. J. N.

[*S. W. Farmer.*

NEWLY INVENTED RICE-POUNDING MILL.

The Kam in the place of the Lifter.

At a regular meeting of the Agricultural Society of South-Carolina, held at the Carolina Hotel, on Tuesday, 18th July, the following Report was read and adopted, and ordered for publication.

Gentlemen of the Agricultural Society:

The Committee appointed to examine Mr. S. K. WILLIAMS' model of a Rice-Pounding Mill, submit the following Report:—

They have examined with care and attention the model, and are of opinion that the improvement suggested may be important to the rice-planting interest. By the proposed improvement, the Pestles may be propelled with a speed far beyond what is usual in common mills, without collision between the Pestles and Lifters, and with little or no increase of power. Also, two rows of Pestles may be worked advantageously with but a small increase of space in the mill.

If your Committee are correct in their opinion, as regards what might be the result of this contemplated improvement, much more rice may be pounded in a given time, by an increased speed of the Pestles than in the common mill; and, also, the quality of the rice would be improved by better brushing: an increased speed to the Pestles would necessarily impart additional warmth to the pounded rice, and all experienced and intelligent millers must know, that rice cannot be effectually brushed, if not conveyed warm from the mortars to the brushing screen; and planters as well as factors, are well satisfied as to the very decided advantage of well brushed rice in market. Rice of an ordinary quality, having that advantage, will command a better price, than a very superior article not so well brushed.

In common pounding mills, the speed of the Pestles cannot be increased beyond from 43 to 48 strokes to the minute, without slamming the Pestles against the Lifters, whereby the latter are broken, and the rice impeded in its preparation for market, and the expense of the mill increased.

One of your Committee used for some years, the Crank-Pestle, with wire-mortars; the speed to the Pestles by the crank, was more than double that by the Pestle shaft. He has also used for

many years, the Pestle and mortar in the common pounding mill. His experience and observation induces him to believe, that if by any means the speed of the Pestle could be increased, without injury to the machine in the common rice mill, it would be an important desideratum, both as regards quantity and quality of rice prepared for market.

JOHN H. TUCKER, *Chairman.*

July 12th, 1843.

THE AGRICULTURAL CONVENTION

Composed of delegates from the Agricultural Societies of South-Carolina, held the contemplated meeting at Monticello, Fairfield District, S. C., on the 5th and 6th of July, for the purpose of discussing subjects relevant to the appointment of Mr. Ruffin as Agricultural Surveyor. We understand from "*The Planter*," that the number which attended were not many; but the meeting was very interesting and pleasant.

"The questions prepared by the committee, were only the basis of a much greater number, and in his replies to them, Mr. Ruffin exhibited a clearness and force of intellect, combined with extensive research, which we were not prepared to expect, notwithstanding the high estimate we long since formed of his mental ability and practical knowledge.

Had the number of delegates been as large as was anticipated, the main object in view, would, doubtless, have been more fully effected; that of exciting a more general feeling of professional union and interest among planters, and producing a greater degree of excitement in behalf of the agricultural improvement of our State."

The Convention was organized by calling Dr. Thomas Smith, of Darlington, to the Chair, and appointing J. J. Dubose, Secretary. The business commenced with the introduction of five Resolutions by Mr. W. J. Allston, which were taken up separately, and, after an animated discussion, adopted. The purport of which were, to approve of the Agricultural Survey and its beneficial tendency, in pointing out means of improvement. That it was the true policy of planters to curtail the cotton crop and increase the provision crop—to supply bread stuffs and raise stock of all kinds—to ac-

complish which, it is desirable to ascertain what grain suits best our particular soils, and what root crops can be raised—the most approved methods of cultivating the same; and what methods can be adopted for reclaiming worn-out lands; and whether it would not be a valuable improvement to curtail the number of acres to the hand, and consequently the number of horses and mules necessary to cultivate them, &c.—calling on the various societies to co-operate with individual planters in the above objects, and make a report to the Agricultural Surveyor.

Dr. J. B. Davis, submitted a number of questions prepared for the occasion, by the Planters' Society of Monticello, which Mr. Ruffin was called on to reply to. Mr. R. commenced in a conversational style to give his views on most of the topics suggested, until the dinner hour.

After a recess, the Convention met at 4 o'clock, when Mr. B. B. Johnston, of Chester, presented the following—

"That whereas, we look upon the present system of purchasing and weighing cotton, in our principal markets as essentially unfair in many respects—humiliating to the seller, and expensive and unsatisfactory to the high-minded and honest purchaser—be it therefore,

Resolved, That the delegates from this Society, to the Monticello Convention, be, and are hereby, instructed to invite the attention of that body to the subject, with a view to the adoption of some system more fair and satisfactory to all parties."

A committee, was thereupon appointed, consisting of Mr. B. B. Johnson, Rev. J. Davis, and Mr. B. B. Cook, who reported the next day, as follows—

"That it is expedient that some uniform rule should be established, to secure correct weights of all produce which may be sold in the markets of our State. It is therefore recommended, that the Agricultural Societies in our State do resolve, that the members will not sell their produce to any merchant in our State, except such article or articles of produce are weighed at some public scale, or by some person sworn to give the just weight; and that the members of our Agricultural Societies do exercise their influence to urge planters, generally, to adopt this practice.

It is also recommanded, that all incorporated towns and villages, should appoint upright men as weigh-masters, so as to render the weighing of produce for their markets, convenient and expeditious, BENJ. B. JOHNSON, *Chairman*."

After some discussion, the report was accepted and adopted.

Gen. Means offered the following resolution, which was adopted.

"*Resolved*, That this Convention request the different Agricultural Societies of the State, to unite in a contribution to procure a perfect analysis of the long and short staple cotton stalk, seed and lint, in the perfect state; and also, of the plant when effected by disease."

An analysis of this kind will throw much light on the proper culture of this plant, at least so far as to indicate the kind of soil best adapted to its growth, and what manure is best calculated to

give it full development. It may serve another good purpose.—Analyzing the plant when in a healthy state, and also when it is affected by rust, may throw some light on the origin of this disease, and thus enable the planter, by knowing its cause, to guard against its appearance.

It was resolved to support an Agricultural paper called "*The Planter,*" lately established at Columbia. Why not the *Southern Agriculturist*—the oldest, and for a long time the only Journal in the State?

After some complimentary resolutions, the Convention adjourned on the 6th.

From the Charleston Mercury.—By request.

INSTRUCTIONS FOR MARL-SEEKERS, ON MINOR POINTS.—INDIGO-VAT-MARL" FORMATION.

Among the many sources of causes of misdirection which have embarrassed or impeded my progress in searching for marl in South-Carolina, there have occurred so many cases of one general class, that it is found necessary to publish the following remarks with the view of preventing future unnecessary trouble on this score, to all parties concerned. I allude to the many supposed discoveries of deposites of marl, of which specimens have been sent to me to be examined and analyzed, or which I have been induced to visit by erroneous reports, and which deposites a very little labor in digging could have shown to the discoverers to be the used lime of old and forgotten indigo-vats, or some other equally artificial deposites, not less limited in amount, and of which the true characters were equally obvious, or open to easy detection. In sundry cases I have been called upon to examine what proved to be such deposites, either *in situ*, at much waste of my time and labor, or otherwise much to the trouble of the proprietors in obtaining and forwarding specimens. Several new supplies of the "Indigo-vat marl" have very recently been received. And as there must be many thousands of such forgotten deposites yet undiscovered in South-Carolina, (that is, one or more on every plantation on which indigo was formerly made,) it may be by no means a work of supererrogation for me to suggest the easy and simple means by which all such artificial and limited deposites may be distinguished from the natural and abundant, and also both kinds from all non-calcareous earths.

When any earth or stone is suspected to be marl, or to be calcareous, the easy and ready mode to test it, is to apply a few drops of muriatic acid, or any other strong acid. Twenty-five cents worth of muriatic acid would be enough to test thus 1000 specimens. If no other acid be at hand, strong vinegar will serve,

provided that, if the specimen be very hard, it be first pounded or crushed. If the earth in question is calcareous, (as marl or lime-stone,) such application of acid will produce (by the disengagement of carbonic acid gas,) an immediate and violent effervescence, which it will be impossible to mistake. A mistake however, *is* frequently made by new experimenters in this manner. If the acid, (as indeed would water) be poured on dry clay, or earth not calcareous, the atmospheric air enclosed in the pores or crevices will give place to the liquid, and escape in air-bubbles, which may be mistaken for a very slight disengagement of carbonic acid gas. The moistening of the earth with water, before touching with acid, will guard against this slight source of error.

This testing by acid decides as to what is calcareous or not, but of course does not distinguish between natural and artificial formations; and for manure, the latter, so far as they may hold out, would be just as serviceable as the former, provided they are as rich. Therefore, when the character of any earth has been tested and found to be calcareous, the next examination needed is (not a chemical analysis of a specimen of the first spade-full, but) to acertain whether the quantity or extent be considerable, by digging and removing the earth, and applying it as manure. Nearly all the artificial deposites (indigo-vats, transported lime-stone, or other kinds,) which I have been called to decide upon, might have been dug through and exhausted in half an hour, and the most extensive of them would not have supplied a single cart for three days. Therefore, in all such cases of doubt, after acertaining the earth to be calcareous, let the proprietor put a grubbing hoe and spade to work, and a cart if need be. The longer the supply may last, so much the more to his profit, and he will not fail to learn, either in a few minutes or a few days, whether the deposite be natural and abundant, or artificial, and of course very limited in extent. If the latter be the case, the proprietor will need no aid; if the former, then I will most willingly receive his specimen, and analyze it and report to him its strength.

Even in regard to natural deposites of *bona fide* marl, it is desirable and necessary that the specimens sent for my examination should be correctly designated and labelled, so that the precise locality and important circumstances shall appear, and also the person be known who selected the specimen, and who is responsible for the accuracy of the description. Without such accompaniments of description and authentication, the report of the analysis of a specimen might serve to mislead rather than to inform or benefit the public. Very different from the course here recommended, specimens of earths and minerals have been sent to me for examination, without any proper designation of the kind, locality, or position in the beds, and sometimes even without the name of the sender. Of course it would be throwing away any labor of investigation to bestow it on such indefinite subjects.

I trust that these remarks will not be misconstrued or ascribed to other than the true and avowed motive. While desirous myself to avoid and to guard others from totally useless trouble, at the same time I will most willingly and gladly incur any labor of investigation, whether by explanations in the field, or by testing in the closet, to extend observations on calcareous earths, which may promise results of any value to the individual propretors, and still more if of value to the public, by indicating new or extended localities and sources of supply of calcareous manures.

EDMUND RUFFIN,

Agricultural Surveyor of South-Carolina.

AGES OF VARIOUS ANIMALS.

Age of Horses.—The age of a horse may be ascertained by his mouth, and the examination of his teeth, till he is eight years old, after which the usual marks commonly wear out. These are, usually forty in all; of which twenty four are double teeth, and from their office, denominated grinders, four tushes, or corner teeth, and twelve fore-teeth.

The first which appear, are the foal-teeth, which generally begin to shew themselves a month or two after foaling; they are twelve in number—six above and six below, and are easily distinguished from the teeth that come afterwards, by their smallness and whiteness having some resemblance to the incisors, or fore-teeth of man.

When the colt is about two years and a half old, he commonly sheds the four middle-most of his foal-teeth, two above and two below; but sometimes none are cast till near three years old. The new teeth are readily distinguished from the foal-teeth, being much stronger, and always twice their size, and are called the nippers or gatherers, being those by which horses nip off the grass when they are feeding in the pastures, and by which, in the house, they gather their hay from the rack. When horses have got these four teeth compiete, they are reckoned to be three years old.

When they are about three and a half, or in the spring before they are four years old, they cast four more of their foal-teeth, two in the upper and two in the lower jaw, one on each side the nippers or middle teeth; so that when you look into a horse's mouth, and see the two middle teeth full grown, and none of the foal-teeth except the common teeth remaining, you may conclude he is four that year, about April or May. Some, indeed, are later colts, but that makes little alteration in the month. The tushes appear near the same time with the four last mentioned teeth, sometimes sooner than these, and sometimes not till after a horse is full four years old; they are curved like the tushes of other animals, only in a

young horse they have a sharp edge all round the top, and on both sides, the inner part being somewhat grooved and flattened, so as to incline to a hollow.

When a horse's tushes do not appear for some time after the foal-teeth are cast, and the new ones come in their room, it is generally owing to the foal-teeth having been pulled out before their time, by the breeders or dealers in horses, to make a colt of three years old, appear like one of four, that he may be the more saleable; for when any one of the foal-teeth have been pulled out, the others soon come in their places; but the tushes having none that precede them, can never make their appearance till their proper time, which is when a horse is full four, or coming four; and therefore one of the surest marks to know a four-year old horse is, by his tushes, which are then very small, and sharp on the tops and edges.

At the time when a horse comes five, or rather in the spring before he is five, the corner teeth begin to appear, and at first but just equal with the gums, being filled with flesh in the middle.—The tushes are also by this time grown to a more distinct size, though not very large; they likewise continue rough and sharp on the top and edges. But the corner teeth are now most to be remarked; they differ from the middle teeth in being more fleshy on the inside, and the gums generally look rawish upon their first shooting out, whereas the others do not appear discolored. The middle teeth arrive at their full growth in less than three weeks, but the corner teeth grow leisurely, and are seldom much above the gums, till a horse is full five; they differ also from the other fore-teeth in this, that they somewhat resemble a shell; and thence are called the shell teeth, because they environ the flesh in the middle half-way round; and as they grow, the flesh within disappears, leaving a distinct hollowness and openness on the inside. When a horse is full five, the teeth are generally about the thickness of a crown piece above the gums. From five to five and a half they will grow about a quarter of an inch high, or more; and when a horse is full six, they will be near half an inch, and in some large horses, a full half-inch above the gums. The corner teeth in the upper jaw fall out before those in the under, so that the upper corner teeth are seen before those below; on the contrary, the tushes in the under gums come out before those in the upper.

When a horse is full six years old, the hollowness on the inside begins visibly to fill up, and that which was at first fleshy, grows into a brownish spot, not unlike the eye of a dried garden-bean, and continues so till he is seven, with this difference only, that the teeth are gradually more filled up, and the marks or spots, become fainter, and of a lighter color. At eight, the marks in most horses is quite worn out, though some retain the vestage of it a longer time; and those who have not had a good deal of experience, may sometimes be deceived by taking a horse of nine or ten years old,

for one of eight. It is at this time only, when a horse is past mark, that one can easily err in knowing his age; such practices are used to make a very young horse or colt, appear older than he really is, by pulling out the foal-teeth before their time, which may be discovered by feeling along the edges where the tushes grow, for they may be felt in the gums before the corner teeth are put forth; whereas, if the corner teeth come in some months before the tushes rise in the gums, we may reasonably suspect that the foal-teeth have been pulled out at three years old.

It is not necessary to mention the tricks that are used to make a false mark in a horse's mouth, by hollowing the tooth with a graver, and burning a mark with a small hot iron; because, those who are acquainted with the true marks, will easily discover the cheat by the size and color of the teeth, by the roundness and bluntness of the tushes, by the color of the false mark, which is generally blacker and more impressed than the true mark, and by other circumstances which denote the advanced age of horses,

After the horse has passed his eighth year, and sometimes at seven, nothing certain can be known by the mouth. It must, however, be remembered, that some horses have but indifferent mouths when they are young, and soon loose their mark; others, have their mouths good for a long time, their teeth being white, even, and regular, till they are sixteen years old and upwards, together with many other marks of freshness and vigor; but when a horse comes to be very old, it may be discovered by several indications, the constant attendants of age; such as his gums wearing away insensibly, leaving his teeth long and naked at their roots; the teeth also growing yellow, and sometimes brownish. The bars of the mouth, which in a young horse are always fleshy, and form so many distinct ridges, are in an old horse, lean, dry, and smooth, with little or no rising. The eye-pits in a young horse, are generally filled up with flesh, look plump and smooth; whereas, in an old one, they are sunk and hollow, and make him look ghastly. There are also other marks which discover a horse to be very old, as gray horses turning white, and many of them being all over flea-bitten, except their joints. This, however, happens sometimes later, and sometimes sooner, according to the variety of color and constitution. Black horses are apt to grow gray over their eye-brows, and very often over a great part of their faces; and all horses, when very old, sink more or less in their backs: and some horses that are naturally long-backed, grow so hollow with age, that it is scarcely possible to fit them with a saddle.

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Age of Neat Cattle.—The age of *cows*, *oxen* and *bulls*, is known by the teeth and horns. At the end of about two years, they shed their first fore-teeth, which are replaced by others, larger, but not so white; and before five years, all the incisive teeth are renewed. These teeth are at first equal, long, and pretty white; but as the

animals advance in years, they wear down, become unequal and black. These animals likewise shed their horns, at the end of three years; and they are replaced by other horns, which, like the second teeth, continue. The manner of the growth of these horns, is not uniform, nor the shooting of them, equal. The first year, that is the fourth year of the animal's age, two small pointed horns make their appearance, neatly formed, smooth, and towards the head, terminated by a kind of button. The following year, this button moves from the head, being impelled by a horny cylinder, which, lengthening in the same manner, is also terminated by another button, and so on; for the horns continue growing as long as the animal lives. These buttons become annular joints or rings, which are easily distinguished in the horn, and by which the age of the creature may be easily known; counting three years for the point of the horn, and one for each of the joints or rings.

Age of Sheep.—The age of these animals is known by their having, in their second year, two broad teeth; in their third year, four broad teeth; in their fourth year, six broad teeth; in their fifth year, eight broad teeth before. After which, none can tell how old a sheep is while their teeth remain, except by their being worn down.

About the end of one year, rams, wethers, and all young sheep, loose the two fore-teeth of the lower jaw; and they are known to want the incisive teeth in the upper jaw. At eighteen months, the two teeth joining to the former, also fall out; and at three years, being all replaced, they are even and pretty white. But as these animals advance in age, the teeth become loose, blunt, and afterwards black. The age of the ram, and all horned sheep, may also be known by their horns, which show themselves in their very first year, and often at the birth, and continue to grow a ring annually, to the last period of their lives.

Age of Goats.—The age of these animals is known by the same marks as those of sheep, viz: by their teeth, and the annular rings on their horns. [*The True Genesee Farmer.*

MISCELLANEOUS.

MISSISSIPPI RIVER.

It is a question frequently asked and never satisfactorily answered, "what goes with the water?" It is known that the difference between high and low water mark, as high up as the mouth of White River, is about 36 feet, and the current at high water mark, runs near 7 miles to the hour; and opposite to New-

Orleans, the difference between high and low water is only 12 feet, and the current little over 3 miles to the hour, the *width and depth* of the river being the same. From which we calculate that near *six* times as much water passes by the mouth of White River as by New-Orleans. What goes with the excess? The only solution I have heard offered is, that it escapes by the bayous Plaquemine, Lafourche and Iberville. And when we calculate the width, depth and current of those bayous, they fall vastly short of affording a sufficient escapement. The true explanation can, I think be given. At *low water* throughout that whole extent, we see a *sand* structure exposed underlying the bank, or that the alluvial structure on which our plantations are, is a stratum of deposite made by the river *above* its *low water* mark, which opposite to the mouth of White River is 30 feet *thick*, and as you descend the river diminishes in thickness, as the difference between high and low water diminishes, and nearly corresponds to it. And wherever the bottom is exposed it shows throughout the whole extent, that the bottom is pure *coarse sand*, showing at many places the *ocean shingle.*

Through the superimposed alluvial structure mixed with *fine* sand, the water percolates with such facility and *rapidity*, that the water in a well dug at a considerable distance from the river bank, rises and falls with the rise and fall in the river, not varying an inch; and through the coarse *sand* and *shingle* of the bottom, it passes as rapidly as through a common *sieve.* By the accurate surveys of several engineers, it is ascertained that the *fall* of the Mississippi river is four inches to the mile. The distance from Natchez to New-Orleans of 300 miles, will give 1,200 inches or 100 feet. The depth of the river is below 50 feet at high water. The river debouches into the ocean from a promontory itself has made. The *surface* of the ocean is by measurement below the *bottom* of the river above New-Orleans, and corresponding with the low water mark below New-Orleans. Therefore the *river is pouring through its own bottom into the ocean.* The superimposed weight giving lateral pressure to hurry the subterranean current. If the reader has ever stood upon a Mississippi sand bar in a hard rain, or seen water poured from a bucket on the sand bar, he has seen that neither can be done in sufficient quantity to produce any current or accumulation on the surface.

The river is, therefore, from the time it comes below the limestone stratas of Missouri and Kentucky, wasting itself through its own bottom. If the Mississippi river had to pursue its course like the Ohio, over a rock strata, walled in by rock and impervious clay banks, the high water mark at New-Orleans would reach 100 feet above its present limit. But running over *coarse sand* walled in by a deposite made of *sand*, ancient *diluvial, detritus and vegetable mould*, no more water reaches the ocean than the *excess* over the amount that can permeate the surrounding structure, and pass off

in the process of *percolation* or *transpiration*, in a subterranean descent to the ocean. The river without any restraint from rock or clay in the bottom or bank, is left free to the government of no other law than the laws of hydrostatics. The "washing" or wasting of the banks cannot be prevented, though the "caving" or "sliding" of large portions at one time may be easily guarded against. There are many proofs of the validity of the foregoing theory derived from other rivers.

The Arkansas West of that State, receives several tributaries, and is itself above their junction as large as the congregated rivers after their junction *within* the State. Within the State it has no more tributaries before reaching the Mississippi river, a distance of 700 miles, which lies within the *sand* district. As a consequence a raise of fifteen or twenty feet sometimes enters the stem of the main river without producing any rise at the *mouth*, unless the supply is maintained for a considerable time. And the far-famed Niger river of Africa, whose mouth has never been found, may be lost and wasted in the great *sand plains* of the desert of Sahara, and its subterranean flood may be again collected on the surface of a subterranean strata of rock, and projected on the surface of the earth, and thus sustain the opinion of Pliny, that the Niger is a western and *main* tributary of the Nile. [*Vicksburg Whig.*

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KEEPING IT UP ON SPRING WATER.

What shall we infer from the following Toasts, drank by a large party on the 4th of July, at the Spring of Mr. C. Carter, at Cambridge, S. C.—quite a cool affair.

By D. Waits.—May the farmers in future practice their own precepts, enrich the soil, and reap more abundantly with less labor.

By J. M. Carter.—The Agricultural Survey and Brigade Encampments.—Imposed upon us by the influence of a monied aristocracy, which "savor of death unto death," to the citizens of South-Carolina.

By John M. Mathews.—An Agricultural Society to become respectable, should be connected with a Masonic Lodge: the charity of the latter could then be exercised in supplying the former with provisions.

By B. F. Bunting.—The State of South-Carolina.—The recent developments of her Agricultural resources, prove to an "*occular demonstration*," that she is rich in *cranberry tarts* and *rice puddings*.

By F. V. Cooper.—Morus multicaulis, Berkshire hogs, and Temperance Societies, different in name, similar in importance, doomed I fear to share the same fate.

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Wine, of an excellent quality, resembling Madeira in flavor, is made in the south of Spain, out of Oranges, which are there very abundant.

LIME.

We are glad to learn that lime, in considerable quantities, has been found during the last week, in Fairfield, and the upper part of Richland, on Cedar Creek. It is, doubtless the primative limestone, which may be burned, and add greatly to the fertility and value of the lands in that region. We expect a more accurate account soon. [*The Planter.*

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SALT.

I will give your readers some account of the benefit of salt, as it is becoming an important article among farmers. I observed two years ago in the town of Stow, an acre of land set with fruit trees of different kinds, and I took notice that one half of the trees were one third larger than the others; and I also observed that where the trees were largest the land was moist, while the other parts was dry. That half of the acre that was moist, and on which the trees were largest, was sown over with two and a half bushels of salt four years before: the other part was dressed with two cords of manure. The part manured with salt appeared as though there had just been a shower upon it; while the other part was dry and dusty. On the part to which salt was applied, the trees were smooth & thirfty; on the other part, the trees were rough and backward. Salt is good to destroy insects that are injurious to fruit. By mixing it with peat mud and laying it around fruit trees, early in the spring, it will destroy the insects that often injure the plum, the apple and peach tree. [*Boston Cultivator.*

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LIME FOR FRUIT TREES.

The suggestions below as to the use of lime around fruit trees, are worthy of attention. In the autumn of 1841, we laid bare the roots of a number of unthirfty apple and peach trees, and left them exposed during the winter, returned the dirt in the spring, and applied to the roots of each tree about half a bushel of gas lime. Last year the trees seemed gently improved, and the pears bore more than three times as much as they did the two previous years; the limbs had to be propped up, and the fruit seemed improved.

We treated some old genuine trees in a similar manner, and the influence was obviously beneficial. Ashes are a good substitute for lime, and ordinary lime would probably do as well as the gas lime. Exposing the roots of trees occasionally during winter, it is well known, is very beneficial. [*Delaware Farmer.*

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WOUNDS AND BRUSES ON HORSES.

Take one quarter of a pound of saltpetre, half a pint of vinegar, half pint of spirits of turpentine; put them together in a bottle, and shake up before useing. Apply it to the wound with a feather, three times a day.

INFALLIBLE CURE FOR A FOUNDERED HORSE.

If your horse founders over night, in the morning take a pint of hog's Lard, put in a vessel and make it boiling hot clean his hoofs well, set his foot in the lard. Heat it for each foot, boiling hot; take a spoon and put the fat over the hoof as near the hair as possible, and will be fit for use in three hours if it is done early in the morning. It is better to remove the horse's shoes, but I have made several cures without. I hrve tried this on many horses during a period of fifty years, and have never known it to fail.

[*Louisville Journal*

—

TO HAVE GOOD MILK.

A writer in the Cincinnati Chronicle, who scems to be perfectly at home on all matters pertaining to milk and milch cows, expresses his or her views as follows:

In selecting the best cows for milk, they should be of the middle size, or upwards, with a mixture of Durham, say one-half or three fourths, and from a good and healthy stock; and never allowed to come in under three years old, for they do not acquire their full growth until that period.

Most persons are in the habit of keeping too many cows; one good cow, well taken care of, is much more profitable, than three or four, kept in the ordinary way; the old maxim is, it costs no more to keep a good cow, than a poor one.

In order to sustain my position, I will state a fact, relative to my own method of keeping cows, and leave the public to judge of its utility:—I have a fine large three fourth Durham cow, six years old; after supplying my family with an abundance of milk and cream, and giving the second day's milk to the calf, which I am raising, and is now two months old, my family made, the last week in November, (and a very cold week too) *nine pounds* of as sweet *yellow butter*, as I ever saw in June; yes, from one cow. It will be asked by what process this could be done, I will answer by a very simple one, which is this: I keep my cow in winter, in a warm dry stable, and under no circumstances allow her to be out in the cold rain, either night or day. I keep her well bedded with straw; give her as much pure water as she will drink three times a day, at which time I feed her with as much good fine hay as she needs, and no more than she will eat up from time to time, night and morning I give her a *peck, well cut up of sugar beets*,* I find potatoes to answer a good purpose, when I have not the beets, but will not make so yellow and sweet butter. Corn and corn-meal I find will not answer the purpose, as it is sure to dry up cows; should have salt two or three times a week.

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* With us, in Mississippi, there is nothing better or cheaper than sweet potatoes in the place of beets—and fodder in place of hay.

TOMATO DUMPLING.

In the manner of composition, mode of cooking and sauce, the good housewife must proceed the same as she would with an apple dumpling with the exception, that care must be taken in putting in the Tomato not to extract the seed or break the meat, in the operation of skinning it. We have eaten this vegetable raw, without anything—cut up with vinegar, salt, peper, and mustard—fried, in butter and in lard, broiled and basted with butter, stewed with and without bread with butter—and with a clear conscience we can say; we like them every way they have ever been fixed for the palate; but of all the modes of dressing them as yet known to us, we greatly prefer them when cooked in dumplings, for to us it appears that the steaming they received in their dough envelopes, increased in a very high degree that spice flavor which even in their uncooked state, makes them such decided favorites of the epicure.

[*Amer. Far.*

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SOMETHING FOR BRICKMAKERS.

If the manufacturers of brick, throughout the length and breadth of the United States would place the date of the year in the bottom of the matrix, and exceedingly simple affair—it might be of immense consequence to the future historians and antiquarians of this country. If the face of some printer's types were made fast on the floor of the mould, each brick, when turned out to dry, would have the date pressed on its side.—This would neither impair the quality or insure its beauty. It is strange that brickmakers have not done this before, with the addition of their names. The builders of Babylon stamped their brick with what is called the *arrow headed* character, but no epoch, unfortunately, is recognized by them.

Stamp the brick—since bricks are the most enduring records of human events known to our race, [*Transcript.*

—

SOAP.

To make Labor-saving Soap.—Two gallons of soft water, 1 lb. of salsoda, 2 lbs. hard soap, 4 oz. rosin, ground fine; 2 oz. extract of lime. Boil all till dissolved, and strain it, and it is fit for use.

To make one Barrel of Soap in two.—One barrel soft water, 1 barrel of soap, 4 lbs. salsoda, 1 lb. of rosin, ½ a lb. of extract of lime. Boil all together until dissolved, and strain it.

To make one Barrel of Soft-soap hard.—Four lbs. salsoda, 1 lb. of rosin, 6 oz. extract of lime. Boil all together until dissolved, then strain and cool it, and it is fit for use.

[*British Whig,*

—

A Lady informs us that cut flowers inserted in moist sand will continue fresh much longer than in water. The sand may be kept in an ornamental basket.

FULLER'S NEW HYBRID WINTER RADISH.

This is a great improvement on the old black Spanish radish, being a hybrid between that variety and the long scarlet, producing roots varying in color from white and pink to black or purple; it is not so large as the black Spanish, consequently much finer in quality, and, for winter use, is a most desirable acquisition. It is perfectly hardy, so much so, that the person who raised says he very frequently has the snow to brush off the ground to gather it, when it is all times found perfectly sound and good. The best time for sowing it is from the first to the third week in August.

VINE CUTTINGS.

Cut the scions into pieces, each having a bud—apply sealing wax to each end, and plant the cutting in rich garden mould.

From the Boston Transcript.

MR. LEGARE.

Our honored guests are gone—returned
To many a dwelling fair;
But none, within his Southern home,
Shall welcome back LEGARE.
No! there is sorrow now within
Its chambers sad and dim,
And tears are dropping fast; and hearts
Are breaking there for him.

And we are sorrowful to think
Scarce was the greeting o'er,
And his clasped hand withdrawn, ere he
Was found with us no more.
And now far from the green retreats
By southern foliage made,
He slumbers in the silent tomb,
Unconscious of its shade.

And that grey obelisk he came
All-reverent to see—
A pilgrim to the soldier's grave—
His monument shall be!
It stands above the glorious dead,
And memory lingers there,
Whilst to the bright names of the past,
We sigh to add—LEGARE.

Oh, how ambition stands rebuked
His shadowy urn beside,
To see the patriot stateman laid
So suddenly aside!
But friendship wets, with many tears,
His dim and hallowed sod;
And leaveth in deep Christian faith,
The sleeper with his God.

L. L.

MONTHLY CALENDAR

OF

HORTICULTURE AND FLORICULTURE.

FOR AUGUST, 1843.

VEGETABLE GARDEN.

Bush and Snap Beans—May be sown about the beginning of this month; the ground in which they are to be reared, should be in an open situation moderately manured and the surface made even; as in general with us this season rains are frequent, they should be planted on ridges or small flat beds, a foot broad on the top, and six inches high, in these ridges or beds, drills of two inches deep should be drawn, in which the beans should be planted and covered. Should the weather be dry at the time you commence planting, soak the beans in soft water for six or eight hours; any of the dwarf kind may be planted at this season. Those which were planted in the last month should be hoed frequently, and earth drawn up around the stems of those that have reached three or four inches in height.

Peas.—These may be sowed in the beginning or middle of this month, for this purpose, the Charlton being an early sort, is the best, as they will be fit for use before the winter sets in. The ground should be selected in an open situation, and drawn up into flat ridges about 4 feet apart, should the weather incline to be wet; if the ground be dry, soak the peas in soft water for ten hours previous to sowing.

Cabbages.—Early York, Sugar Loaf, and Savoy Cabbage seed may be sown any time in this month; the early ones will head the latter end of November. The ground in which these seed are to be sown, must be rich, and in an open situation, and should be divided in beds of 3½ feet wide, with broad alleys at least six inches deep, so that the graund in wet weather might be kept as dry as possible; the seed must not be sown too thick, must be thinly covered with earth, and if you can furnish them with shade by means of bushes or otherwise, it will not only aid the seed in their germination, but the plants after they are up.

Cabbage Plants of the large kind that are fit to be put out, may now be removed to their station. The ground to receive them should be thus prepared; after it is manured, well dug up and spread even, the surface should be laid out in rows of two feet or a little more, according to your space; the earth should then be drawn with a hoe in ridges or small beds six inches high, and a foot broad on the top; on these rows or beds, the plants should be set about 2 feet apart. If the weather is dry, water every evening till rooted.

Savoy Cabbages are treated in the same manner, excepting, that they are planted 20 inches from each other in the rows. They will head in November and December.

Cauliflowers and Brocoli should be planted in an open spot, 2½ to 3 feet apart; manure well rotted and dug in. Plants set out last month should be hoed frequently.

Carrots.—To be sown any time this month. Directions same as last month.

Onions.—First crop sown thick last of this month—transplant in October or November.

Spinach.—For a certain crop, sow the round-seeded kind towards the middle or near the latter end of this month, but not longer. Preparation of the ground, &c. see July.

Celery may still be transplanted. The tops and leaves cut off, and the ends of the roots trimmed; if dry weather, water frequently and liberally.

Endive.—Transplant that sown last month, in beds 5 feet wide—four rows to each bed; manure well, rake the surface even, and if dry, water every evening.

Lettuces.—Sow pretty thick in low ground, and water every evening until they are up.

Radishes—Sow salmon, short top and turnip, in beds 3 or 4 feet wide, not too thick; if dry, water every evening until they come up, and one or twice a week afterwards.

Turnips—Any of these species may be sown early this month, for autumn and winter use. Those sown last month will now require hoeing, without delay, and with the greatest care, in order to avoid injury to the young plants. Hoe every fortnight.

Potatoes may be planted this month for winter use. The ground manured and raked out in rows of 2½ feet apart, and drawn up 10 inches broad on the top. In the middle of these rows plant the sets about 10 or 12 inches from each other, with the cut part downwards; a dibble may be used, or drills of the proper depth made with a hoe.

Small Salading may still be sowed as directed in the last month.

THE MAGNET.

DEVOTED to the Investigation of Human Physiology, Physiognomy Cephalonomy, Pathology, Phrenology, Neurology, Psychology, Electricity, Galvanism, Magnetism, Light, Caloric, &c. By Le Roy Sunderland.

The design is to illustrate these studies of the mind, called Supernaturalism, Mesmerism, Clairvoyance, Trance, Somnambulism, Transfer, Clairvoyance, and various other Phenomena which have hitherto remained shrouded in Mystery. The pages are enriched with Essays and Communications, detailing facts, illustrating the Science of Cephalonomy, which explain the principles and Susceptibilities of the Human Mind, and the method of controlling the passions, especially Pestilence, for the Relief of Human Suffering.

☞ The Second Volume of this Periodical, Weekly, will be commenced about July, 1843. It will be printed on new, clear, fair type, and published Monthly, at $3 a year, or $1 a copy, cash for the Proprietor, by PETER P. GOOD, 128 Fulton-street, New-York, where subscriptions are received.

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July 1. 6t

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For 1842.

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Judge Gilchrist,
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TO OUR READERS AND CORRESPONDENTS.

Several articles will be found in this Number re-published from the *Planter* by request—which we have complied with, and shall continue so to do, but would prefer to receive communications originally. Our subscribers will always find us ready to oblige them; and hope they will do their part in extending the circulation of the *Southern Agriculturist.*

The Publisher appeals to the planting interest of South-Carolina to support this Journal. It has long been devoted to their interest and has no sinister views in continuing to be the medium of communication on the subject of agriculture, and those connected with it. While under the management of Mr. J. D. Legare, at times it languished, but still it was resorted to as the legitimate medium of communication for the agricultural community—and has thus been sustained from year to year since 1828. The exertions making to establish another paper, to be published weekly, have drawn off a number of subscribers; but the importance of retaining information in a useful and handy form, ought to give to this Journal such a support as will enable it to stand its ground with any competitor. We allow some advantage is derived from a weekly over a monthly publication; and if our friends would support us in the exertions, we will retain our present pamphlet form, and publish weekly, 16 or 20 pages;—this would take a greater number of subscribers than we have at present.

☞ The Subscribers to the Southern Agriculturist are reminded, that the Price of the Journal was reduced this year to all those who paid in advance; those who are still in arrears for this and former years are respectfully solicited to make their payments.

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